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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,701	10/27/2005	Alexandra Brand	12810-00159-US1	9514
23416 7590 12/22/2008 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899			EXAMINER NWAONICHA, CHUKWUMA O	
			ART UNIT 1621	PAPER NUMBER
			MAIL DATE 12/22/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/554,701

**Applicant(s)**

BRAND ET AL.

**Examiner**

CHUKWUMA O. NWAONICHA

**Art Unit**

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)  
3) ☐ Information Disclosure Statement(s) (PTO/SG/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Current Status***

1. This action is responsive to Applicants' amendment of 4 September 2008.
2. Receipt of Applicants' Remarks is acknowledged.
3. Claims 1-20 are pending.
4. The 103 and 102 rejections are withdrawn in favor of this rejection.

Applicants' arguments filed 4 September 2008 have been fully considered but they are moot in favor of the new grounds of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sauer et al., {US 5,852,219} or Mashkina et al., {Activity of tungstate catalysts in the synthesis of

methyl mercaptan from methanol and hydrogen sulfide; Reaction Kinetics and Catalysis Letters (1988), 36(1), 159-164}.

Applicants claim a catalyst for the synthesis of methyl mercaptan, obtainable from aluminum oxide, an alkali metal tungstate and at least one further component selected from the groups of the ammonium salts and of the protic acids sulfuric acid, phosphoric acid, sulfurous acid, tungstic acid, phosphorous acid, hypophosphorous acid, or a mixture thereof, wherein the pH of the catalyst, measured on a 10% strength aqueous suspension, is in the range from 5.0 to 9.7; wherein all the variables are as defined in the claims.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Sauer et al. teach catalyst for the synthesis of methyl mercaptan from hydrogen sulfide and methanol, as well as a process for preparing the catalyst. The catalyst contains active aluminum oxide on which 15% to 40% by weight cesium tungstate is deposited as the activator. The activator, cesium tungstate, gives an unexpected increase in activity and selectivity as compared with potassium tungstate. The reaction was conducted in the presence of 25% ammonia solution, tungstic acid at a pH 8-14 and potassium tungstate charged was from 8%-20%. Sauer et al. teach a process that employed a molar ratio of hydrogen sulfide to methanol of 1.5. The catalyst system showed high selectivity, see columns 5 and 6.

Mashkina et al. teach a catalysis obtained by impregnation of  $\text{Al}_2\text{O}_3$  with solutions of alkali metal hepta-, dodeca-, and metatungstates and normal alkali metal tungstates. Most selective for MeSH were catalysts with an alkali metal-to-tungsten atomic ratio of

2:1 wherein the molar ratio of hydrogen sulfide to methanol was 1.6. Mashkina et al. teach a catalyst system wherein the pH 3.3-7.0, and the catalyst system showed high selectivity, see page 161.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02).**

Sauer et al. catalyst system and process for the synthesis of methyl mercaptan differs from the instantly claimed catalyst system and process for the synthesis of methyl mercaptan in that applicants' claimed catalyst system and process wherein the pH of the catalyst, measured on a 10% strength aqueous suspension, is in the range from 5.0 to 9.7 while Sauer et al. teach a process wherein the pH is 8-14. On the other hand, Mashkina et al. teach a catalyst system wherein the pH is 3.3-7.0.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P. §2142-2143)**

The instantly claimed catalyst system and process for the synthesis of methyl mercaptan would have been suggested to one of ordinary skill in view of the teaching Sauer et al. and Mashkina et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by varying the process conditions and catalyst composition and concentration from the teaching of Sauer et al. and Mashkina et al. to obtain a catalyst system for the synthesis of methyl mercaptan. Said person would have been motivated to practice the teaching of the reference cited because it demonstrates that methyl mercaptan is useful in industrial applications.

The Examiner notes that varying the reaction conditions in a chemical reaction is a well-known chemical practice to optimize the process efficiency of the system and does not constitute a patentable distinction. Also, merely modifying the process conditions such as concentration is not a patentable modification absent a showing of criticality. In *re Aller*, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955).

Moreover, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. It should be noted that the pH of the catalyst system is a function of dilution of the catalyst medium. That is, a 10% dilution will give a different pH value from undiluted catalyst medium. Therefore, the pH of the catalyst, measured on a 10% strength aqueous suspension is not a patentable modification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/  
Examiner, Art Unit 1621

(for)

/Sikarl A. Witherspoon/  
Primary Examiner, Art Unit 1621

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Daniel Sullivan  
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Technology Center 1600